

HAZARDOUS MATERIALS RESPONSE TEAM

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| DESCRIPTION | A Hazardous Materials Response Team is an organized group of hazardous materials (HAZMAT) technicians who respond to HAZMAT incidents, including those involving Weapons of Mass Destruction (WMD). Additional personnel trained in HAZMAT operations may assist the Hazardous Materials Response Team in performing low-risk tasks that do not bring them into contact with hazardous materials or substances, at the team leader's discretion. |
| RESOURCE CATEGORY | Fire/Hazardous Materials |
| RESOURCE KIND | Team |
| OVERALL FUNCTION | <p>The Hazardous Materials Response Team:</p> <ol style="list-style-type: none"> 1. Detects the presence of, and identifies associated chemical and physical properties of, HAZMAT and WMD substances 2. Identifies and establishes control zones 3. Contains and mitigates solid, liquid, gas, and vapor leaks through interventions such as neutralization, plugging, and patching 4. Uses standard protocols to collect and label substances and evidence in preparation for transportation 5. Interprets readings from radiation detection devices and conducts geographical surveys to search for suspected contamination or radiological sources 6. Takes action to limit exposure and contain the spread of contamination 7. Conducts research related to HAZMAT and WMD to contribute to the Incident Action Plan (IAP) 8. Develops predictive models to inform protective actions and support the IAP |
| COMPOSITION AND ORDERING SPECIFICATIONS | <ol style="list-style-type: none"> 1. Discuss logistics for deploying this team, such as working conditions, length of deployment, security, lodging, transportation, and meals, prior to deployment 2. Teams deploy with their own vehicle(s), equipment, and supplies 3. Type 1 teams support multiple entries into HAZMAT/WMD environments requiring protective ensembles consistent with the following National Fire Protection Association (NFPA) standards: <ol style="list-style-type: none"> a. 1991: Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies and CBRN Terrorism Incidents b. 1992: Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies c. 1994: Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents 4. Type 2 teams support entries into environments with unknown/known and classified hazards requiring protective ensembles consistent with NFPA 1991, 1992, or 1994 standards 5. Type 3 teams support entries into environments with known and classified hazards requiring protective ensembles consistent with NFPA standards 1992 or 1994 6. Teams work in accordance with the protocols and regulations concerning work/rest ratios, exposure times, and exposure limits specified in mutual aid agreements 7. Requestor and provider discuss: <ol style="list-style-type: none"> a. Level of capability necessary for detection, monitoring, sampling, substance identification, and intervention b. Need for and availability of additional consumable supplies such as damming/diking materials and showers c. Need for specialized equipment such as secure radios d. Mission-specific capabilities such as tank car, railcar, cargo tank trucks, intermodal tanks, marine tanks, non-tank vessels, radioactive materials, and bulk storage for flammable liquids and gases e. Coordination with local, state, and Federal agencies—such as Local Emergency Planning Committee (LEPC), State Emergency Response Commission (SERC), and Environmental Protection Agency (EPA) |

Each type of resource builds on the qualifications of the type below it. For example, Type 1 qualifications include the qualifications in Type 2, plus an increase in capability. Type 1 is the highest qualification level.

Resource Typing Definition for Environmental Response/Health and Safety
Fire/Hazardous Materials

| COMPONENT | TYPE 1 | TYPE 2 | TYPE 3 | NOTES |
|--|--|---|--|---|
| MINIMUM PERSONNEL PER TEAM | 8 | 8 | 8 | Not Specified |
| MANAGEMENT AND OVERSIGHT PERSONNEL PER TEAM | Same as Type 2 | Same as Type 3 | 1 - National Incident Management System (NIMS) Hazardous Materials Technician | This NIMS Hazardous Materials Technician functions as team leader. |
| SUPPORT PERSONNEL PER TEAM | Same as Type 2 | Same as Type 3 | 7 - NIMS Hazardous Materials Technician | Team members function in the following roles, as necessary: 1. Hazardous Materials Technician 2. Assistant Safety Officer - Hazardous Materials 3. Hazardous Materials Technical Reference Specialist |
| CAPABILITY PER TEAM | All hazards, including WMD | Unknown and known chemicals | Known chemicals | A "known chemicals" Type 3 team, for example, would be similar to a facility response team. |
| FIELD PRESUMPTIVE TESTING AND PUBLIC SAFETY SCREENING CAPABILITIES PER TEAM | Same as Type 2, PLUS: Responds to unknown or suspected WMD materials and substances using specialized detection equipment | Same as Type 3, PLUS: Identification and classification of unknown substances using a variety of advanced chemical and radiological detection devices | Capable of presumptive testing, identification, and classification of known chemical substances using a variety of sources to identify associated chemical and physical properties | Tools include printed and electronic reference resources, safety data sheets, field testing kits, specific chemical testing kits, chemical testing strips, data derived from detection devices, and air monitoring instruments. |
| ATMOSPHERIC AIR MONITORING CAPABILITIES PER TEAM | Same as Type 2, PLUS: Advanced detection and monitoring capabilities, including ability to use WMD detection instruments | Same as Type 3, PLUS: Ability to use advanced detection equipment to detect the presence of known or unknown gases or vapors; advanced detection and monitoring may incorporate sophisticated instruments that can differentiate between two or more hazardous vapors and that may identify by name a specific hazardous or toxic vapor | Ability to use devices to detect the presence of known gases or vapors, including the ability to monitor for oxygen deficiency percentage, flammable atmosphere lower explosive limit (LEL), carbon monoxide, and hydrogen sulfide | Not Specified |
| SAMPLING CAPABILITIES PER TEAM | Same as Type 2, PLUS: Same as Type 2, PLUS: Ability to use special resources that may be required for collecting air samples and handling biological materials | Same as Type 3, PLUS: 1. Ability to sample, collect, containerize, label, and prepare to transport unknown toxic industrial chemicals or toxic industrial materials—both liquid and solid—in accordance with standard collection and chain of custody protocols 2. Ability to collect, handle, and track samples to be used as evidence | Ability to perform the following activities with known toxic industrial chemicals or toxic industrial materials, according to established protocols: standard sampling, collection, containerizing, labeling, and preparation for transportation and distribution, including standard environmental sampling procedures for lab analysis | Not Specified |

| COMPONENT | TYPE 1 | TYPE 2 | TYPE 3 | NOTES |
|---|---|---|---|---------------|
| SUBSTANCE DETECTION AND MONITORING EQUIPMENT PER TEAM | Same as Type 2, PLUS: 1. Advanced testing instruments, such as gas chromatography and mass spectrometry devices 2. Advanced direct-reading instruments for perimeter air monitoring, such as surface acoustic wave (SAW) or nanotechnology devices 3. Advanced radiological detection instruments, such as x-ray and neutron detection monitors and isotope identification instruments | Same as Type 3, PLUS: 1. Intermediate testing equipment, such as Fourier transform infrared (FTIR) spectroscopy or Raman spectroscopy devices 2. Intermediate volatile organic compound (VOC) instrument, with parts-per-billion (ppb) sensitivity, at minimum 3. Intermediate radiological detection instruments, such as alpha radiation detection monitors with survey capabilities | Tools for testing chemical substances to identify chemical and physical properties, including: 1. Basic testing equipment and supplies, such as chemical testing kits and testing strips 2. Direct-reading instruments, such as multi-gas meters to include O ₂ , LEL, H ₂ S, and CO sensing capabilities, at minimum 3. Photoionization detector (PID), with parts-per-million (ppm) sensitivity, at minimum 4. Radiological detection instruments, such as beta and gamma radiation detection and survey monitors 5. Printed and electronic reference resources 6. Safety data sheets 7. Personal dosimeter (for each team member) | Not Specified |
| RADIATION DETECTION AND MONITORING CAPABILITIES PER TEAM | Same as Type 2, PLUS: 1. Ability to identify and establish exclusion zones 2. Ability to identify some but not all radionuclides, including neutron detection 3. Ability to conduct environmental and personnel surveys 4. Possession of accumulative self-reading dosimetry (for each survey team member) | Same as Type 3, PLUS: 1. Ability to detect and survey for alpha, beta, and gamma radiation | 1. Ability to accurately interpret readings from beta and gamma radiation detection devices 2. Ability to conduct a geographical survey search for suspected radiological sources or contamination spread | Not Specified |

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| PERSONAL PROTECTIVE EQUIPMENT (PPE) PER TEAM MEMBER | Same as Type 2 | Same as Type 3, PLUS: 1. Vapor-protective chemical protective clothing (CPC) 2. Flash-fire vapor- protective CPC, including a flash-fire protective option for vapor-protective CPC 3. WMD-compliant CPC | 1. Complete CPC ensembles, including: a. Suit (encapsulating or non-encapsulating jumpsuit, multipiece; specifications depend on level of protection required) b. Boots c. Gloves 2. Liquid splash protection 3. Self-contained breathing apparatus (SCBA) or other respiratory protection, as appropriate | 1. Liquid splash protection must comply with NFPA 1992 standards. 2. Vapor-protective CPC and flash-fire vapor-protective CPC must comply with NFPA 1991. 3. Protective ensembles for first responders to WMD terrorism incidents must comply with NFPA 1994. 4. Respiratory protection, including SCBA or air purifying respirator (APR), complies with Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) Part 1910.120: Hazardous Waste Operations and Emergency Response, and Part 1910.134: Respiratory Protection. |
| TECHNICAL REFERENCE CAPABILITIES PER TEAM | Same as Type 2, PLUS: Access to WMD references, databases, or reach-back assistance | Same as Type 3, PLUS: At minimum, access to technical references or outsourced reach-back capabilities and at least one source of air modeling with map overlay capabilities | 1. Ability to access and use various databases, chemical substance data repositories, other guidelines and safety data sheets (print or electronic), standalone computer programs, and data available via telecommunications 2. Ability to interpret data collected from electronic devices and chemical testing procedures and select a response option | Not Specified |
| INCIDENT INTERVENTION CAPABILITIES PER TEAM | Same as Type 2, PLUS: Advanced capabilities, including the ability to intervene and confine/control incidents involving WMD materials | Same as Type 3, PLUS: Ability to use a chemical means such as neutralization and encapsulation of known and unknown chemicals, along with mechanical means (pneumatic and standard patching systems)—including specially designed kits for controlling leaks in large atmospheric or pressurized containers | 1. Ability to use a mechanical means of intervention and product control, such as plugging, patching, off-loading, and tank stabilization, along with environmental means such as adsorption, absorption, dams, dikes, and booms 2. Access to an assortment of hand tools | Hand tools may include hammers, wrenches, pliers, screwdrivers, bung wrenches, shovels, wrecking bars, drum upenders, chisels, punches, and so on. |
| COMMUNICATIONS EQUIPMENT PER TEAM | Same as Type 2, PLUS: 1. Satellite data and voice service 2. GPS tracking and mapping | Same as Type 3, PLUS: 1. Wireless data communications with stand-off 2. 2 laptop computers 3. Long-range optics 4. Portable weather station | 1. 8 handheld two-way portable radios 2. 2 smartphones 3. Laptop computer 4. Color printer | Personnel using CPC must be able to communicate appropriately and safely with each other. |
| DECON CAPABILITIES PER TEAM | Same as Type 2 | Same as Type 3 | Ability to support all team decontamination needs | Local first responder operations (FRO) personnel augment this team's decontamination capabilities, if necessary. |

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| DECONTAMINATION SUPPLIES PER TEAM | Same as Type 2 | Same as Type 3 | Range of supplies and equipment for conducting decontamination, commensurate with the mission assignment | Not Specified |

NOTES

Nationally typed resources represent the minimum criteria for the associated component and capability.

REFERENCES

1. FEMA, NIMS 509: Hazardous Materials Technician
2. FEMA, National Incident Management System (NIMS), October 2017
3. FEMA, National Response Framework, June 2016
4. National Fire Protection Association (NFPA) 472: Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents, latest edition adopted
5. NFPA 475: Recommended Practice for Organizing, Managing, and Sustaining a Hazardous Materials/Weapons of Mass Destruction Response Program, latest edition adopted
6. NFPA 1072: Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications, latest edition adopted
7. NFPA 1991: Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies and CBRN Terrorism Incidents, latest edition adopted
8. NFPA 1992: Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies, latest edition adopted
9. NFPA 1994: Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents, latest edition adopted
10. Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) Part 1910.120: Hazardous Waste Operations and Emergency Response, latest edition adopted
11. OSHA 29 CFR Part 1910.134: Respiratory Protection, latest edition adopted
12. U.S. Fire Administration (USFA)/National Fire Academy (NFA): Field Operations Guide ICS 420-1, latest edition adopted